

Title (en)

SONOS MEMORY DEVICE AND METHOD OF OPERATING A SONOS MEMORY DEVICE

Title (de)

SONOS-SPEICHERANORDNUNG UND VERFAHREN ZUM BETRIEB EINER SONOS-SPEICHERANORDNUNG

Title (fr)

DISPOSITIF DE MÉMOIRE SONOS ET PROCÉDÉ DE FONCTIONNEMENT D'UN DISPOSITIF DE MÉMOIRE SONOS

Publication

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Application

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Abstract (en)

[origin: WO2007135632A2] The present invention relates to a memory device, hereinafter SONOS memory device, comprising SONOS memory cells having a control gate terminal connected to a SONOS layer stack with a nitride layer, a source terminal and a drain terminal; and a programming unit, which is connected to the drain terminal and to the control gate terminal and which is configured to apply a predetermined positive drain voltage to the drain terminal of the selected SONOS memory cell and a predetermined negative gate voltage to the control gate terminal of the selected SONOS memory cell each upon receiving a programming request addressed to a selected SONOS memory cell, the drain voltage and the gate voltage being suitable for creating hot holes at a drain side of the selected SONOS memory cell in a gate-assisted band-to-band-tunneling process and for injecting the hot holes into the nitride layer of the selected SONOS memory cell, thus switching the selected SONOS memory cell from a high- V_{T_T} state to a low- V_{T_T} state.

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